

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the applications:

Listing of Claims:

1. (original) An adchromosomal plant comprising a mini-chromosome, wherein said mini-chromosome has a transmission efficiency during mitotic division of at least 90%.

2. (original) The plant according to claim 1, wherein the mini-chromosome has a transmission efficiency during mitotic division of at least 95%.

3. (currently amended) The plant according to claim 1 ~~or 2~~, wherein the mini-chromosome has a transmission efficiency during meiotic division of at least 80%.

Claims 4- 5 (canceled).

7. (currently amended) The plant according to ~~any one of claims 1-6~~ claim 1, wherein the mini-chromosome is 1000 kilobases or less in length.

Claims 8-9 (canceled)

10. (currently amended) The plant according to ~~any one of claims 1-9~~ claim 1, wherein the mini-chromosome comprises a site for site-specific recombination.

11. (currently amended) The plant according to ~~any one of claims 1-10~~ claim 1, wherein the mini-chromosome comprises a centromeric nucleic acid insert derived from a crop plant centromere.

Claims 12- 13 (canceled)

14. (currently amended) The plant according to ~~any one of claims 1-13~~ claim 1, wherein the mini-chromosome comprises a centromeric nucleic acid insert that comprises artificially synthesized repeated nucleotide sequences.

15. (currently amended) The plant according to ~~any one of claims 1-14~~ claim 1, wherein the mini-chromosome is derived from a donor clone or a centromere clone and has substitutions, deletions, insertions, duplications or arrangements of one or more nucleotides in the mini-chromosome compared to the nucleotide sequence of the donor clone or centromere clone.

16. (currently amended) The plant of ~~any one of claims 1-15~~ claim 1, wherein the mini-chromosome is obtained by passage of the mini-chromosome through one or more hosts.

Claims 17- 18 (canceled)

19. (currently amended) The plant according to ~~any one of claims 1-18~~ claim 1, wherein the mini-chromosome comprises one or more exogenous nucleic acids.

Claims 20-24. (currently amended)

25. (currently amended) The plant according to ~~any one of claims 19-24~~ claim 19, wherein at least one exogenous nucleic acid is operably linked to a heterologous regulatory sequence functional in plant cells.

Claims 26 -2 (canceled)

30. (currently amended) The plant according to ~~any one of claims 1-29~~ claim 1, wherein the mini-chromosome comprises an exogenous nucleic acid that confers herbicide resistance, insect resistance, disease resistance, or stress resistance on the plant.

Claims 31- 38 (canceled)

39. (currently amended) The plant according to ~~any one of claims 37~~ claim 1, wherein the centromere of the mini-chromosome comprises n copies of a repeated nucleotide sequence, wherein n is less than 1000.

40. (currently amended) The plant according to ~~any one of claims 1-38~~ claim 1, wherein the centromere of the mini-chromosome comprises n copies of a repeated nucleotide sequence, wherein n is at least 5.

Claims 41- 42 (canceled)

43. (currently amended) The plant according to ~~any one of claims 1-42~~ claim 1, wherein the mini-chromosome comprises a telomere.

44. (currently amended) The plant according to ~~any one of claims 1-42~~ claim 1, wherein the mini-chromosome is circular.

45. (currently amended) he plant according to ~~any one of claims 1-44~~ claim 1, wherein the plant is a monocotyledone.

46. (currently amended) The plant according to ~~any one of claims 1-44~~ claim 1, wherein the plant is a dicotyledone.

Claims 47- 53. (canceled)

54. (currently amended) A part of the plant according to ~~any one of claims 1-53~~ claim 1.

55. (canceled)

56. (currently amended) A meiocyte or gamete or ovule or pollen or endosperm of the plant according to ~~any one of claims 1-53~~ claim 1.

57. (currently amended) A seed, embryo or propagule of the plant according to ~~any one of claims 1-53~~ claim 1.

58. (currently amended) A progeny of the plant according to ~~any one of claims 1-53~~ claim 1.

59. (original) The progeny of claim 58 wherein the progeny is the result of self-breeding.

60. (original) The progeny of claim 58 wherein the progeny is the result of cross-breeding.

61. (currently amended) The progeny of claim 58 wherein the progeny is the result of ~~apomyxis~~ apomixis.

62. (original) The progeny of claim 58 wherein the progeny is the result of clonal propagation.

63. (original) The progeny of claim 58 comprising a mini-chromosome descended from a parental mini-chromosome that contained a centromere less than 150 kilobases in length.

Claims 64 – 65 (cancelled)

66. (currently amended) A method of making a mini-chromosome for use in the plant according to ~~any one of claims 1-53~~ claim 1, comprising

identifying a centromere nucleotide sequence in a genomic DNA library using a multiplicity of diverse probes, and

constructing a mini-chromosome comprising the centromere nucleotide sequence.

67. (original) The method of claim 66 wherein the identifying further comprises

determining hybridization scores for hybridization of the multiplicity of diverse probes to genomic clones within the genomic DNA library,

determining a classification for genomic clones within the genomic DNA library according to the hybridization scores for at least two of the diverse probes, and

selecting one or more genomic clones within one or more classifications for constructing the mini-chromosome.

Claims 68-75 (canceled)

76. (currently amended) The method of ~~any one of claims 66-74~~ claim 66 wherein at least one probe hybridizes to arrays of tandem repeats in genomic DNA.

77. (currently amended) The method of ~~any one of claims 66-74~~ claim 66 wherein at least one probe hybridizes to ribosomal DNA, and a classification comprises a low hybridization score for hybridization to said probe.

Claims 78-81 (canceled)

82. (currently amended) A method of making a plant according to ~~any one of claims 1-53~~ claim 1, comprising

delivering a mini-chromosome to a plant cell using a biolistic method, wherein a particle suitable for use in a biolistic method is delivered in a liquid with the mini-chromosome, and

regenerating a plant from the plant cell.

83. (original) The method of claim 82 wherein the liquid further comprises a divalent ion and a di- or poly-amine.

84. (currently amended) A method of making a plant according to ~~any one of claims 1-53~~ claim 1, comprising

co-delivering to a plant cell a mini-chromosome and a nucleic acid encoding a growth inducing gene, wherein said nucleic acid is not part of the mini-chromosome, and regenerating a plant.

85. (original) The method of claim 84 wherein the nucleic acid encoding a growth inducing gene is not expressed or not present in the regenerated plant.

86. (original) The method of claim 84 wherein the nucleic acid encoding a growth inducing gene is expressed during regenerating the plant.

87. (currently amended) The method of ~~any one of claims 84-86~~ claim 84 wherein the growth inducing gene is selected from the group consisting of encoding plant growth regulator genes, organogenesis-promoting, embryogenesis-promoting or regeneration-promoting genes

88. (canceled)

89. (currently amended) A method of using a plant according to ~~any one of claims 1-53~~ claim 1 to produce a food product comprising the steps of growing the plant, and harvesting or processing the plant.

90. (currently amended) A method of using a plant according to ~~any one of claims 1-53~~ claim 1, to produce a recombinant protein comprising the step of growing a plant comprising a mini-chromosome that comprises an exogenous nucleic acid encoding the recombinant protein.

Claims 91-92 (canceled)

93. (currently amended) A method of using a plant according to ~~any one of claims 1-53~~ claim 1 to produce a chemical product comprising the step of growing a plant

comprising a mini-chromosome that comprises an exogenous nucleic acid encoding an enzyme involved in synthesis of the chemical product.

Claims 94 – 95 (canceled)

96. (new) The plant according to claim 2, wherein the mini-chromosome has a transmission efficiency during meiotic division of at least 80%.